

## CLAIMS

What is claimed is:

1           1.     A vessel mooring and fluid transfer system for use with liquid cargo transport  
2     vessels, said system comprising:

3                     an extended length space frame having a first end and a second end;

4                     said rigid extended length space frame being supported on said first end by a  
5     first column and on said second end by a buoyancy system;

6                     said first column being secured to the seabed;

7                     said buoyancy system being supported by a substantially flat tank;

8                     means for mooring said vessel to said first end of said rigid extended length  
9     space frame;

10                    means for changing the azimuth of said rigid extended length space frame at said  
11     second end of said rigid extended length space frame;

12                    means for moving fluid to/from said vessel located at said second end of said  
13     rigid extended length space frame.

1           2.     The system as defined in Claim 1 wherein said means for changing the  
2 azimuth of said rigid extended length space frame are thrusters.

1           3.     A vessel mooring and fluid transfer system for use with offshore vessels, said  
2 system comprising:

3                   a rigid extended length space frame having a first end and a second end;

4                   said rigid extended length space frame being supported on said first end by a  
5 first column and on said second end by a second column;

6                   said first column being secured to the seabed;

7                   said second column being constructed and arranged to rest on said seabed;

8                   means for mooring said vessel to said first end of said rigid extended length  
9 space frame;

10                  means for changing the azimuth of said rigid extended length space frame at said  
11 second end of said rigid extended length space frame;

12                  means for moving fluid to/from said vessel located at said second end of said  
13 rigid extended length space frame.

1           4.     The system as defined in Claim 3 wherein said means for changing the  
2 azimuth of said rigid extended length space frame includes thrusters.

1           5.     A method for mooring and off-loading fluids from a vessel at an offshore  
2 location, said method comprising the steps of:

3                     supporting the first end of an extended length space frame at an offshore  
4 location, so that the second end of said extended length space frame to move around  
5 said first end of said extended length space frame;

6                     mooring the vessel to the first end of said extended length space frame;

7                     providing a fluid connection to the vessel at said second end of said extended  
8 length space frame; and

9                     pumping fluid from the vessel through said fluid connection.

1           6.     The method as defined in Claim 5 wherein the azimuth of said extended  
2 length space frame with respect to its first end is established by thrusters located on said  
3 second end.